

The Advanced Manufacturing Office (AMO) partners with industry, small business, regional entities, and other stakeholders to identify and invest in emerging advanced manufacturing and clean energy technologies, provide energy-related leadership in the national and interagency Advanced Manufacturing Partnership through targeted manufacturing Institutes, and encourage a culture of continuous improvement in corporate energy management to capture savings today.

What We Do

Manufacturing converts a wide range of raw materials, components, and parts into finished goods that meet market expectations. By reducing the life-cycle energy consumption of a range of manufactured goods by 50 percent within 10 years of the start of major research and development efforts, we will support the creation of high-quality domestic manufacturing jobs and enhance the competitiveness of the United States. AMO's three focus areas include:

- ✓ **Research and Development Projects** to invent and improve the next generation of manufacturing technologies and materials for full-scale industrial use.
- ✓ **Establish Manufacturing Institutes** to engage in developing a rigorous set of high-impact industrial process technologies and materials for clean energy manufacturing and industrial energy productivity that can be applied across a spectrum of globally competitive U.S. manufacturers and suppliers.
- ✓ **Industrial Technical Assistance** to make it easier for American companies to manage energy wisely and make energy management an everyday part of doing business.

The Clean Energy Manufacturing Initiative (CEMI) is a new cross-cutting activity that will incorporate the technical expertise of many of EERE's programs. CEMI will be anchored by the Advanced Manufacturing Office and, with strong involvement and dedicated funding through several EERE programs, will focus on the urgent economic opportunities in U.S. clean energy manufacturing. The goals

of this effort are to dramatically improve U.S. competitiveness in the manufacturing of clean energy products (such as solar modules, LED's, batteries, and wind blades) and strengthen U.S. competitiveness across many manufacturing industries through increased energy productivity.

Program Goals/Metrics

The program is strategically positioned to strengthen EERE's investment portfolio by addressing the critical cross-cutting materials and manufacturing challenges that are shared across multiple clean energy technologies and energy-intensive manufacturing industries. The program is adopting lifecycle-based performance metrics to accurately account for materials and process technologies with large impacts both within and beyond the industrial sector and is focused on assisting in the development and deployment of existing and advanced energy efficiency technologies. The Programs specific goals are:

- Support the development of advanced manufacturing materials and processes that enable 50 percent energy savings across related product lifecycles.
- Promote and assist the development of up to 40 GW of new, cost-effective clean CHP by 2020.
- Engage leading companies in reducing energy intensity by 25 percent over ten years and a culture of continuous improvement in energy management.

FY 2014 Priorities

Next generation manufacturing R&D projects focus on transformational manufacturing improvements in foundational technologies that will strengthen the competitiveness of today's industry. It also focuses on advanced manufacturing to grow the U.S. manufacturing base and advancing foundational technology opportunities for clean energy applications to grow new clean energy industries (PCAST and AMP recommendations).

These projects will develop high priority technologies from

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Next Generation Manufacturing R&D Projects	60,334	205,000	—	120,000
Advanced Manufacturing R&D Facilities	34,628	54,000	—	217,500
Industrial Technical Assistance	17,730	31,000	—	27,500
Total, Advanced Manufacturing	112,692	290,000	116,287	365,000

*FY 2013 amounts shown reflect the P.L. 112-175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level, a dash (—) is shown.

early-stage applied R&D concepts through the prototype scale in order to dramatically increase manufacturing energy productivity.

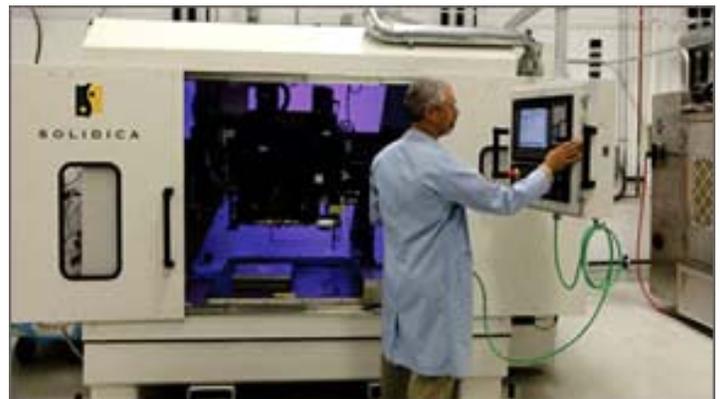
Advanced manufacturing R&D facilities such as the Clean Energy Manufacturing Innovation Institutes, Critical Materials Hub, and the Manufacturing Demonstration Facility on Additive Manufacturing are all critical parts of the President's effort to accelerate advanced manufacturing and engage colleges and universities and small and medium-sized business enterprises (SMEs). The institutes are a key part of the strategy for developing foundational manufacturing technologies that will significantly reduce lifecycle energy requirements.

- The Clean Energy Manufacturing Innovation Institutes will be supported in FY2014, consistent with the President's vision for a larger, multi-agency National Network of Manufacturing Innovation (NNMI), and will provide American businesses – especially SMEs – timely and affordable access to cutting-edge physical and virtual advanced manufacturing tools. It will also develop next-generation materials and process technologies to transition to industry.
- The Critical Materials Hub will address potential supply disruptions of critical energy materials through increased recovery efficiency, increased recycling, reduced need, and substitutes.
- The Manufacturing Demonstration Facility on Additive Manufacturing at Oak Ridge National Lab will continue to work with industry to develop and adopt transformational manufacturing technologies in support of the multiagency pilot institute focused specifically on additive manufacturing.

Industrial Technical Assistance provides technical assistance to improve industrial competitiveness; catalyze energy management using strategic partnerships, international standards (ISO50001) and other best practices; and assist with adoption of Combined Heat and Power.

Key Accomplishments

- AMO is supporting 18 Next Generation R&D projects to bring foundational manufacturing technologies and materials toward full-scale industrial capacity. These technologies will provide benefits across multiple sectors.
- Critical Materials Hub – The Ames Laboratory is leading efforts to develop solutions across the lifecycle of critical materials.
- The office supported the Additive Manufacturing Demonstration Facility and Carbon Fiber Technology Facilities at ORNL.
- AMO demonstrated advanced combined heat and power technologies for improved efficiency and reduced emissions.
- 126 companies committed to savings of 25 percent over 10 years with cumulative energy savings of approximately 100 TBtus, and more than 10 demonstrations of facilities were certified for Superior Energy Performance with a new third-party system.
- More than 220 technologies commercialized since 1979, and 265 patents issued and 78 R&D 100 Awards won from 1999-2012.



The DOE Manufacturing Demonstration Facility at Oak Ridge National Laboratory (ORNL) provides manufacturers access to an array of state-of-the-art additive manufacturing capabilities. The technology shown uses ultrasonic energy (sound) instead of heat and pressure to weld materials at a molecular level.
Photo credit: ORNL